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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,298	09/11/2003	Alexander Pakhomov		3564

7590 12/15/2004

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EXAMINER	
LOBO, IAN J	

ART UNIT	PAPER NUMBER
3662	

DATE MAILED: 12/15/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/659,298	PAKHOMOV ET AL.
	Examiner	Art Unit
	Ian J. Lobo	3662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 4-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 4-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: On page 6, lines 11-12, "A precharged, non-conductive membrane". Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:

On page 6, last line "element 13" is described as increasing the mass of plate 6. However, the figure does not correspond to this description of element 13.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith ('897, '854) when taken in view of Bennett ('117).

5. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liebermann ('446) when taken in view of Bennett ('117).

Liebermann discloses a capacitive-type pressure sensitive transducer (hydrophone) that includes a first immovable plate (1), a pre charged non-conductive membrane (4) and a movable plate or diaphragm (2). Similarly, Smith discloses a capacitive-type pressure sensitive transducer that includes a first immovable plate (3), a pre charged non-conductive membrane (7) and a movable plate or diaphragm (2).

The difference between claim 1 and the Liebermann or Smith structures is the claim specifies a mass-increasing element formed as a lug attached to the movable plate or diaphragm.

Bennett teaches using an additional mass (lug) placed upon a movable diaphragm to provide greater sensitivity for the sensor.

Thus, in view of the teaching of Bennett, it would be obvious to one of ordinary skill in the art to modify Liebermann or Smith by including a mass or lug upon the

movable plate or diaphragm so as to increase the sensitivity of the sensor. Claim 1 is so rejected.

Dependent claims 4 and 5 are further provided by the Smith patents.

6. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liebermann or Smith when taken in view of Bennett, as applied to claim 1 above, and further in view of Hepp ('298) and Sanchez ('423).

Hepp teaches (col. 5, line 61 – col. 6, line 2) that it is common to shield seismic sensors from electromagnetic interference by using a stainless steel casing.

Claims 6 and 7 specify a double shield of nickel and copper.

Sanchez teaches a double shield arrangement of nickel and copper for protecting an electronic device from electromagnetic interference.

In view of the well know use of emi shielding in seismic detectors, as disclosed by Hepp, and the advantageous use of a double shield, as taught by Sanchez, it would be obvious to one of ordinary skill in the art to further modify Smith or Liebermann to include a double shield of nickel and copper for achieving emi suppression.

Response to Arguments

7. Applicant's arguments filed September 27, 2004 have been fully considered but they are not persuasive.

Applicant first argues that the acoustic transducer of Liebermann is not a seismic sensor as claimed. This argument is not convincing since seismic sensors and

hydrophones (Liebermann) are all classified as acoustic sensors. Hydrophones detect pressure within an underwater environment and seismic sensors detect pressure variations within a land formation. One of ordinary skill in the art would not find there to be a patentable distinction between seismic sensors and hydrophones since they both detect acoustic waves, only in different environments.

Applicant further argues against the Bennett reference individually. However one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Specifically, in view of the teachings of Bennett, it would have been obvious to one of ordinary skill in the art to modify Liebermann to include a mass or lug upon the movable plate or diaphragm so as to increase sensitivity of the sensor.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ian J. Lobo whose telephone number is (703) 306-4161. The examiner can normally be reached on Monday - Friday, 6:30 - 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H. Tarcza can be reached on (703) 306-4171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ian J. Lobo
Primary Examiner
Art Unit 3662

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